

ABSTRACT

Carbon nanotube (CNT) films, patterns and biochips and methods of making the same are provided. Such a biochip~~The present invention relates to a CNT biochip comprising~~ comprises a bio-receptor which is attached by means of an exposed chemical functional group on a surface of a high density CNT film or pattern which is produced by laminating repeatedly carbon nanotubes (CNT) repeated lamination of CNTs by chemical bond on the~~on a substrate modified with exposed amine groups, and a method for fabricating the same. According to the present invention, it is possible to fabricate~~ Various types of CNT-biochips may be fabricated by chemical or physicochemical bonding of various bio-receptors to a CNT pattern (or film) containing exposed carboxyl groups or a CNT pattern (or film) modified by various chemical functional groups. Also, it is possible to fabricate a CNT biochip comprising bio-receptors attached evenly with high density on a surface of a CNT film where chemical functional groups are abundant and present evenly. Further, the CNT-biochip is applicable to next generation biochips which may be used to measure an electrical or electrochemical signal using both conductor and semiconductor properties of the CNT, thereby not needing labeling. Particularly, upon fluorescent measurement of DNA hybridization using the such a CNT-DNA chip according to the present invention, it is possible to show more distinct signals, thereby producing excellent results. The CNT DNA chip is useful for genotyping, mutation detection, pathogen identification and the like.

APPENDIX B